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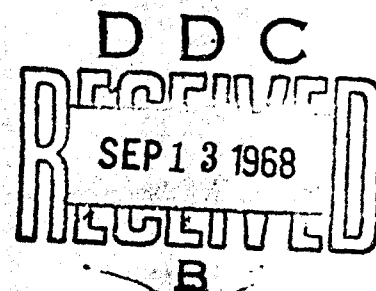
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DEPARTMENT OF THE ARMY
Fort Detrick
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HOWARD TAYLOR RICKETTS AND HIS WORK
ON TYPHUS FEVER (MEXICAN TYPHUS)

[Following is a translation of a Spanish-
language document entitled "Howard Taylor
Ricketts y sus Trabajos Sobre el Tabardillo
(Tifo de Mexico)" (English version above).]

Published by the Department of Public Instruc-
tion and Fine Arts in Fulfillment of the De-
cree of the President of the Republic.

MEXICO

Printing Shop of the Widow of F. Diaz De Leon,
Successors, Avenida del Cinco de Mayo y Motolinia
(5th of May Avenue and Motolinia)

1910

DECREE

according to which was published

this

COMMEMORATIVE VOLUME

of the works of

DR. HOWARD TAYLOR RICKETTS

DEPARTMENT OF PUBLIC INSTRUCTION AND FINE ARTS.

Section of High School, Preparatory and Professional Education.

Mexico, 1 July 1910.

As an homage to the memory of the heroic investigator Howard Taylor Ricketts, who died as a consequence of typhus fever contracted in the course of his research on this disease, and by decree of the President of the Republic, a volume shall be published containing: 1) the official documents related to the death of Doctor Ricketts; 2) his work and the work of his coworker, Mr. Russel M. Wilder, on the etiology of typhus fever; and 3) the speeches delivered during the ceremony that took place in the Bacteriological Institute when a commemorative plaque was unveiled in the laboratory in which Dr. Ricketts carried out a part of his investigations in Mexico. Distribute said volume to the Secretaries of Public Instruction, the main Universities, Scientific Societies, Libraries and medical publications of the nations friendly to Mexico; as well as to the national scientific institutions.

Justo Sierra

OFFICIAL DOCUMENTS RELATED TO THE DEATH OF DOCTOR HOWARD
TAYLOR RICKETTS

I

NOTE: Sent by the Secretary of Public Instruction and Fine Arts to Doctor H. T. Ricketts' widow, informing her about the homages decreed by the President of the Republic in memory of Doctor Ricketts.

DEPARTMENT OF PUBLIC INSTRUCTION AND FINE ARTS

Section of High School, Preparatory and Professional Education.

This Department has learned with sorrow that Doctor Howard T. Ricketts, your husband, has just passed away, a victim of typhus which he contracted in the course of his very important research on this disease, which he performed in this capital.

As homage to the heroic investigator, who gave his life for science, the President of the Republic has decreed:

- 1) That the laboratory in which he worked in the National Bacteriological Institute be named after Dr. Ricketts;
- 2) That during three days the facades of the buildings of the National School of Medicine and the National Bacteriological, Medical, and Pathological Institutes be draped in black as a sign of mourning for such a deplorable death;
- 3) That a commission of professors and students of the National School of Medicine attend the funeral, and 4) That this Department send cables of condolence to the President of the Universities of Chicago and Pennsylvania, for the death of their distinguished professor.

While communicating this to you, I present again the sorrow of this Department for the death of the very distinguished Dr. Ricketts and I express my sympathy and respects.

Liberty and Constitution. Mexico, 3 May 1910. --
Justo Sierra.
To Mrs. Howard T. Ricketts. -- City.

II

NOTES exchanged between the Department of Public Instruction and Fine Arts and the Presidents of the Universities of Chicago and Pennsylvania, at the occasion of the death of Dr. H. T. Ricketts.

1. -- OFFICIAL CABLE

President of the University of Chicago.

Chicago.

The Department of Public Instruction and Fine Arts of Mexico makes known to that University its sincere condolence for the deplorable death of the heroic investigator, Dr. Howard T. Ricketts.

Justo Sierra.

2. -- OFFICIAL CABLE

President of the University of Pennsylvania

Philadelphia.

The Department of Public Instruction and Fine Arts of Mexico sends to that University its sincere condolence for the deplorable death of the heroic investigator, Dr. Howard T. Ricketts.

Justo Sierra.

3. -- CABLE SENT BY THE PRESIDENT OF THE UNIVERSITY OF CHICAGO AT THE DEATH OF DR. RICKETTS.

Hyde Park, Chicago.

To the Department of Public Instruction.

Mexico.

The University of Chicago highly appreciates your sympathy for the death of professor Ricketts. He dies as a hero, exactly as a soldier does in the battlefield.

Harry Pratt Judson,
President

4. -- NOTE FROM THE PROVOST OF THE UNIVERSITY OF
PENNSYLVANIA.

University of Pennsylvania.

Office of Provost.

Philadelphia, 6 May 1910.

Esteemed Mr. Secretary:

I wish to express to you my own and personal impressions, as well as the gratitude of the University of Pennsylvania, for your kind telegram in relation to the death of Dr. Ricketts.

The death of Dr. Ricketts not only means a loss for the University of Pennsylvania, but also for the great cause for which he sacrificed his life, which is none other than the elimination of one of the most dangerous diseases. We are convinced that the result of his investigations would have been of great usefulness, not only for the people of the United States, but also for the people of your country, and the sentiment of this loss goes deeper within ourselves by the fact that Dr. Ricketts did not live long enough for the complete realization of his goal.

His death serves to make visible the essential unity of high level investigations all over the world, and the possibilities of an international cooperation whose end consists in decreasing the misery and the sufferings of human beings. The University of Pennsylvania is very willing to contribute its part to this cause and is ready to do so.

Repeating my gratitude and my esteem for your deeply felt words of condolence, I am,

Yours sincerely,
Chas. C. Harrison
Provost

To His Excellency the Minister of Public Instruction and Fine Arts, Mr. Justo Sierra.

City of Mexico, Mexico.

5. -- NOTE FROM THE PRESIDENT OF THE UNIVERSITY OF CHICAGO.

University of Chicago, founded by John D. Rockefeller.

Office of the President.

16 May 1910.

Mr. Justo Sierra,

Minister of Public Instruction and Fine Arts

Mexico City, Mexico.

Esteemed Sir:

Mrs. Howard T. Ricketts has presented to me your letter, dated May 3, in which is transmitted information of the decision made by the President of the Republic. I should like to request that, in the name of the University of Chicago, you express to His Excellency, the President, how sincerely we appreciate the honors he has ordered on occasion of the death of Dr. Ricketts. I should like to add an expression of my own personal appreciation for the distinguished services of His Excellency to the cause of civilization and progress, and my high regard for his kind and sympathetic attitude in this period of sadness and mourning for the University. The work of men such as Dr. Ricketts and the warm reception and cooperation that such work has found in Mexico, I am sure, will serve to tighten even more the cordial bonds which unite these two Republics.

Very truly yours,

Harry Pratt Judson
President

III

Official memorandum in which the decree of the President of the Republic is communicated to the Director of the National Bacteriological Institute, in order that in the future the laboratory of that Institute, in which Dr. H. T. Ricketts carried out a good part of his investigations, on the etiology of typhus, be named "Laboratorio Howard Taylor Ricketts" (Howard Taylor Ricketts Laboratory).

DEPARTMENT OF PUBLIC INSTRUCTION AND FINE ARTS.

Section of High School, Preparatory and Professional Education.

This is in answer to your memorandum dated 3 May, communicating to this Department the passing away of Dr. Howard T. Ricketts in the American Hospital. Dr. Ricketts carried out the investigations of typhus fever, of which he has become a victim, with great enthusiasm and probable success. In view of the important studies which the unfortunate investigator was performing and considering that he lost his life by contracting the disease, which he was studying, the President of the Republic has decreed that the laboratory of that Institute in which Dr. Ricketts carried out a major part of his investigations be named after the heroic investigator. Please, order a marble plaque with this inscription: "Laboratorio Howard Taylor Ricketts. Mayo 3 de 1910" (Howard Taylor Ricketts Laboratory. 3 May 1910), which shall be placed in said laboratory. A ceremony will be held, for which you will propose a program to this Department in due time, and which shall include, prominently, a speech by Mr. R. M. Wilder, coworker of Dr. Ricketts, on his work. To this effect, the Institute will please invite the above-mentioned Mr. Wilder in the name of this Department.

I request that you make the necessary preparations to this effect.

Liberty and Constitution. Mexico, 13 May 1910. By order of the Secretary: The Subsecretary, E. A. Chavez.

To the Director of the National Bacteriological Institute. -- City.

DOCUMENTS ON THE CEREMONY HELD IN THE NATIONAL BACTERIOLOGICAL INSTITUTE ON 24 JUNE 1910, WHEN A COMMEMORATIVE PLAQUE WAS UNVEILED IN THE INSTITUTE LABORATORY WHERE DR. HOWARD TAYLOR WORKED

I

Invitation of the Department of Public Instruction and Fine Arts to the ceremony which took place 24 June 1910 in the National Bacteriological Institute in Memory of Doctor Howard Taylor Ricketts.

The Department of Public Instruction and Fine Arts requests the honor of your presence at the ceremony which will take place on the 24th of this month at 10.00 AM in the National Bacteriological Institute (Popotla D. F., Gonzalo Sandoval Street 4) at the occasion of the unveiling of a commemorative plaque in the laboratory of the Institute in which Dr. Howard Taylor Ricketts worked. He was a distinguished professor of the University of Chicago and the University of Pennsylvania, and lost his life during his research on typhus fever.

Mexico, 17 June 1910.

II

Chronicle of the ceremony which took place 24 June 1910 in memory of Dr. Howard Taylor Ricketts in the National Bacteriological Institute.

The Department of Public Instruction and Fine Arts, desiring to render solemn homage to the memory of Dr. Howard Taylor Ricketts (who died of a typhus fever infection which he acquired in the course of his research on the etiology of this disease) and to pay courtesy to the respective resolution of the President of the Republic, organized the ceremony which took place on 24 June 1910 in the National Bacteriological Institute.

For this ceremony, the following were particularly invited: The Honorable Ambassador of the United States of America and the Honorable Consul General of the same nation. Invitations were also distributed to personnel of the National School of Medicine, the Army Medical Corps, the National Bacteriological, Pathological, and Medical Institutes, and to the principal scientific societies of the capital.

The commencement started at 10:30 AM under the presidency of Attorney Ezequiel A. Chavez, Undersecretary of Public Instruction and Fine Arts, who represented the Secretary of the Department. In the audience were the Honorable Henry Lane Wilson, Ambassador of the United States, The Honorable Arnold Shanklin, American Consul General, who occupied honor seats on the platform, Dr. Alfonso Pruneda, Chief of the Section of Elementary, Secondary, Preparatory and Professional Education in the Department of Public Instruction and Fine Arts; Dr. Angel Gavino Iglesias, Director of the Bacteriological Institute; Dr. Jose Girard, Assistant Chief of the laboratories of the Institute; Dr. Manuel Toussaint, Director of the National Pathological Institute; Dr. Jose Terres, Director of the National Medical Institute; Dr. Eduardo Liceaga, Director of the National School of Medicine, Dr. Jesus Monjaras, Secretary of the Superior Council of Health; Mr. Russel M. Wilder, coworker of Dr. Ricketts in his research on typhoid; Drs. Octavio Gonzalez Fabela and Jose P. Gayon, professors of bacteriology in the National School of Medicine; the entire staff of the Bacteriological Institute, and commissions of the National Academy of Medicine of Mexico, of the Army Medical Corps, the Society of Internal Medicine, the "Pedro Escobedo" Society and the Alumni Society of the National School of Medicine.

When the audience had been seated in the laboratory of the students of the bacteriology course for specialists, Dr. Genaro Escalona, also a coworker of Dr. Ricketts, read the oratory of Mr. Russel Wilder in memory of Dr. Ricketts.

Thereafter, the Director of the Bacteriological Institute presented a talk after which the assistants went to the laboratory in which the heroic investigator worked and where a commemorative plaque had been placed decreed by the Government of the Republic and a portrait of Dr. Ricketts sent by his widow as a sign of gratitude to the Bacteriological Institute.

The Ambassador of the United States of America presented this portrait to the Institute in an eloquent address; and thereafter the Subsecretary of Public Instruction and Fine Arts made an address and unveiled the plaque commemorating the works of Doctor Ricketts.

The plaque which was covered by the flags of the United States of America and the Mexican Republic is of white marble and contains this inscription: Laboratorio Howard Taylor Ricketts. 3 May 1910. (Howard Taylor Ricketts Laboratory, 3 May 1910).

The ceremony closed shortly before noon.

III

Doctor Howard Taylor Ricketts by Russel H. Wilder.

Dr. Howard Taylor Ricketts was born in Findlay, Ohio, 9 February 1871 and died in Mexico, 3 May 1910. He spent his youth in Nebraska; in the University of this State, he received the degree of Bachelor of Arts in 1894. Soon he chose the Medical Career, knowing that his career would cost him many sacrifices and would require abnegation, he enrolled at the Medical School of Northwestern University, Chicago. There, he graduated as doctor in medicine in 1894 [sic]. During the last year of his career he became ill of exhaustion and because of this, he could not attend many of his classes, and due to this the diploma could have been denied to him would it not have been for the excellent reputation which he gained during the aptitude test as intern of the Cook County Hospital of Chicago, a position which he desired very much.

He was in this position for two years, showing such capacity and love for the work, that his colleagues predicted a great future for him. Because of his modesty and courage, as well as his sincerity, he made life-long friends among his colleagues.

In the last years of his life Ricketts rarely spoke about the study of pathology in his profession. Medical research had just started in America in 1896; and little encouragement was given to him by those who hoped to dedicate themselves to these investigations. On the other hand, the medical practice attracted him because of his special ability for it. His decision to chose this practice, for which he felt attraction, proves his love for humanity.

After he left the hospital, he accepted a post in the Department of Skin Diseases in Rush Medical College. At that time important dermatological discoveries were made in 1896. A skin disease caused by an organism resembling a fungus was observed for the first time and discovered by Gilchrist. In Chicago, a certain number of similar cases was reported; and the names of Stokes, Hyde, Montgomery, Hekton, Wells and others were associated with this study. The fungus was classified as an "oidium" and the disease designated as "Dermatitis due to Oidiomycosis". New cases continued to appear at the Hospitals of Chicago and Ricketts devoted himself with enthusiasm to the study of these cases

and the bacteriological investigations related to them. The work on this subject was complete and perfect and his monograph on the Oidiomycosis gave him great honor.

In 1900 he married Myra Tubbs who supported his work courageously. No friend could have been as dedicated and could have stimulated him so much; nobody as she could have been as zealous for the success of Ricketts; and although his work meant sacrifice for both of them, his wife never demanded that he would remain at her side when duty called him, even if this meant danger for him and for his family. His enthusiasm could only be matched with the one of his life companion; her courage reached the sublime.

Ricketts spent the years of 1901 and 1902 in Berlin, Vienna, and Paris; he returned to Chicago in 1903 and accepted the post of Instructor and later the one of Assistant Professor at the University. His interest for research never decreased, and he dedicated himself to certain immunity problems with unusual sharpness and clear and vigorous reasoning. It was at this time that he started to write his book called "Infection, Immunity and Serotherapy." This book was published in 1906 and widely read; although it is small, it is a very complete presentation of the subject matter. The clarity in the exposition has been evaluated with justice; Ricketts used to write briefly and without effort, a fact which increased the value of his scientific activity. He contributed for many years his editorials in the respective section of the Journal of the American Medical Association.

During his 1906 vacation in Idaho, he became interested in Rocky Mountain Spotted Fever. He dedicated himself to the study of this disease in the following four years and in this work he showed himself as a first-class investigator.

Spotted Fever is found in the Bitter Root Valley of Montana, in Idaho, and in other limited regions of other Western States. This fever is notable for its great variety of malignity. The mortality rate of this fever is from 75 to 80 percent in Montana, while in Idaho it is less than 5 percent. The disease is uniquely confined, limited to springtime -- a fact which soon drew attention to the possibility that the sheep and cattle tick could play an active role in the transmission of the disease. He was able to demonstrate that Spotted Fever could be transmitted to monkeys and guinea pigs, and that the disease could be carried by the cattle tick from an infected animal to a healthy one. This notion, acquired by knowledge of the disease, widened the field of study and he gave himself to it with all his energy.

To us who followed the various stages of the progress in this active and intense work it appeared clear that Ricketts, with his brilliant, imaginative mind, had been able to foresee the various phases of the program which would bring the final answer. But since we also followed him in his tenacious and painstaking work, we were sure that he would perform this very difficult task as long as he could draw an effective conclusion. We recognized that he possessed absolutely the qualities that convert an artist into a great scientist.

He showed that Spotted Fever is hereditary in the cattle tick. The recently hatched cattle tick from the eggs of an infected tick will transmit the disease to a healthy animal. Of course, he proved the existence of infected cattle ticks and also the role that certain wild animals play in the support of the disease; these wild animals function as a source of infections for the ticks. Finally, Ricketts could announce the discovery of the immediate cause of Spotted Fever, namely: small bacilli which are generally bipolar and which are similar to the plague bacilli. This organism is present in the blood of the individual and in the infected cattle ticks. A great number is found in the eggs of the cattle tick so that an emulsion of these contains a sufficient number of organisms to permit one to carry out the agglutination test. It was found that the blood serum taken from animals cured of this disease agglutinates these bacilli, even at high dilution (1 to 4 per 100). The normal serum does not possess this property and the specificity of the reaction can only be explained on the basis of a causal relation between the bacillus and the disease. Some other results obtained during the last year, and not yet published, confirm, what has been said before, that the etiology of Spotted Fever can be regarded as proved.

The importance of this discovery cannot be evaluated as yet because something completely new has been revealed. The diseases caused by insects had always been considered to be protozoic. Spotted Fever is an example which destroyed this belief. There is a strange similarity, in fact, between the existence of a microorganism in the blood of typhus patients and the microorganism discovered by Ricketts, causing Spotted Fever.

While he was performing these studies, his attention was drawn to typhus. As Mexico offered him a not too distant place for this study, he started to make plans for the investigations which he would carry out here. The clinical similarity between Spotted Fever and typhus is remarkable.

It occurred to Ricketts that these two diseases could be branches of one single group of hemorrhagic septicemia and that the bubonic plague would be a third disease of this group. He thought that his knowledge of Spotted Fever and the technique related with it would be of great value in the study of typhus. Since July 1909, he planned work on the study of this disease. It was not until after this date that he or one of his colleagues heard of the existence of a prize for the successful investigations on Mexican typhus. I speak of this because I wish to make it clear that Ricketts made his decision without the knowledge that the Mexican Government had offered any prize.

The results of the related to typhus have been published in the Journal of the American Medical Association and in Archives of Internal Medicine, which, briefly summarized, are as follows:

1) Monkeys of the species *Macacus Rhesus* were found to be susceptible to typhus when blood taken from persons sick with this disease was injected into them. The presence of the virus in the blood was shown by this, thus confirming the observations of this effect made by Nicolle and of Anderson and Goldberger.

2) Although Spotted Fever and typhus have some common characteristics, it was demonstrated that they are two different diseases. A monkey cured of a typical typhus attack was inoculated with blood from a guinea pig suffering from Spotted Fever. The monkey, though immune to typhus, was not immune to Spotted Fever and died from this.

3) It was shown that a moderate typhus attack can be provoked in a monkey by the bite of a louse previously infected because it had been fed blood from a typhus patient. When a monkey has recovered from a similar attack, it is immune for a certain period of time against inoculation with blood from a typhus patient. Seventeen lice were needed to infect a monkey; all of these lice together could not hold in their body more than 0.2 cubic centimeter blood. As has been demonstrated by the experiment, this amount of blood is too small to infect a monkey and it was concluded that the reproduction of the virus took place in the body of the louse. Therefore, the transmission of typhus by the louse was demonstrated.

4) Most of the typhus virus does not pass through a Berkefeld filter. Two normal monkeys were inoculated with the same amount of blood and serum from a typhus patient: in one case, the serum had been filtered previously, the animal receiving this serum stayed unharmed; whereas

the other animal receiving unfiltered serum had a typical typhus case. The fact that the virus behaves in this manner makes one think that the organism is large enough to be visible with the microscope. The attention was then turned to the microscopic examination of the blood. Ricketts, shortly before his death, announced the discovery of a bacillar microorganism in the blood of typhus-infected species. The future will tell, if this bacillus is or is not the immediate cause of the typhus disease. Some hypothetical considerations show that this is very probably the organism in question.

As far as typhus transmission by the louse is concerned, I shall state that other studies, as yet unpublished, have confirmed the experiences mentioned above. The possible function of the flea and the bedbug was investigated. With the flea we could not obtain any vaccination, the only experiment performed. The bedbug did not produce any feverish reaction nor other symptoms of this disease. Unfortunately, the test animal died as a consequence of an intestinal infection, before the immunity test could be performed; the theoretical considerations make one think that neither one of these two insects transmits ordinarily typhus. It would depend on the identity or non-identity of the Old World typhus and the Mexican typhus whether these experiments in the transmission of the disease can be considered as a discovery or as a simple confirmation of the observations of the European typhus made previously by Nicolle. There are many clinical differences between the two diseases based on experimental differences. A Macacus monkey is apparently not susceptible to direct inoculation with blood infected with European typhus. On the other hand, it is openly susceptible to the Mexican type. The incubation period pointed out by Nicolle varies between 24 and 40 days, whereas the monkeys inoculated with Mexican typhus started to have fever between 5 and 12 days.

Nicolle has provoked a typhus with a hemorrhagic eruption whereas in Mexico neither Dr. Gavino and his assistants nor Drs. Anderson and Goldberger, nor we have observed this eruption. Nicolle's work must be repeated and, if his results are considered final, it would appear to solve the question of the non-identity of the two diseases. Otherwise, it is a matter of little importance to whom the merit of priority belongs: results have been obtained already indicating the means for the elimination of Mexican typhus. The sacrifice has been great. Now that we are gathered in memory of Dr. Ricketts, we must pay tribute to that other investigator who this year lost his life in the

study of typhus. I speak of Dr. Coneffe of the University of Ohio. And now the work is in the hands of those who have frequently demonstrated their ability and their wishes for the progress of human healthfulness. Efforts for the elimination of typhus in this city have already been started by the authorities. The future promises another sample of the wise administration of this great Republic, which will be comparable to the great success achieved by Dr. Liceaga and his subordinates when they liberated the city of Veracruz and the entire Republic from that other plague: Yellow Fever. In fact, the Mexican Government has always shown interest in scientific investigations and in those problems on which the health and well-being of the people depend. It is due to the cooperation and the courtesy of the Department of Public Instruction and Fine Arts, to the Superior Council of Health, to the doctors in the Bacteriological Institute, and to the authorities of the General Hospital that Dr. Ricketts had been able to contribute to the knowledge about the typhus disease: great merit belongs to them.

Because Ricketts was a modest man, not presumptuous, even withdrawn to himself, he made many friends and felt the satisfaction of true and intimate affection. He was generous in praising his colleagues and interested in his assistants and students. His genius lay in his well-known, clear imagination, in his love for work; his success was based on his inexhaustible courage. He won laurels although for the price of hardships. He never hesitated to do something which appeared to him great, although danger was involved.

He was respected by all and loved by many. The affection of his disciples came close to worship. The world mourns his death because he was considered one of the most skillful experimenters of America. To us have come expressions of sympathy from great figures in the scientific world, such as Ehrlich, Flexner, Welch, Weichselbaun, Roux and many others. It is satisfying to think that he was well-known before his death. He was invited to become a member of the Rockefeller Institute, of the Leland Stanford Jr. University, of the Bellevue Hospital of New York, and other institutions of this kind. He accepted the post of Professor of Pathology at the Pennsylvania University and he died as professor of this Institution.

His death is a loss for the world, although the world can say that it became richer because this man lived. Due to his efforts, some dark paths became wide and illuminated; but greater than everything is the example that Howard T. Ricketts has left for us, an example which should be

inspired by the young people to whom he showed the road, and which will serve to stimulate the hearts of his disciples which could hesitate.

Russell M. Wilder.

IV

Address by Dr. Angel Gavino, Director of the National Bacteriological Institute.

Mr. Subsecretary,

Gentlemen

A life which has been beneficial to humanity has been extinguished; a devoted fighter fell to the ground from which no one rises, as the Marathon runner fell carrying swiftly the news of victory; thus Ricketts, wishing to reach before other researchers the frontiers of truth in the study of exanthematous typhus, did not see that he went to a certain death because he rejected the dangers which surrounded him and not listening the prudent advice of those who saw him so confident, he marched with his eyes fixed on the rough path that could lead him to discovery and he did not stop to think that this same path would leave his beloved ones in the orphanage because a great idea possessed him, kept him absorbed, subdued him; the idea to catch in the network of his technique the germ producing one of the most deadly threats of many people. We saw him, at the beginning, filled with hopes and ardent enthusiasm, asking for a place in these laboratories to dedicate himself without losing time and without interruption of his interesting studies, and how he was filled with modesty and with the faith that excites those who are well equipped with knowledge and who hope that their effort will lead them to solve an intricate problem -- that of discovering one of the most obscure secrets with which modern science confronts us. We opened the door as wide as it was so that an illustrious comrade would enter, a brother in science, and we put at his disposition all the facilities that we had all means at our disposal so that he could use them in his experiments; because we believed and continued to believe that in helping him we fulfilled a sacred duty: the duty that, all those of us in science must always carry; that of supporting in good faith the

the work of those who have probabilities of reaching the goal and of hoping without fears or passion for their triumph to be the first ones to applaud.

We have watched our poor friend Dr. Ricketts in the laboratory: he was always serene, always quiet, wrapped up in his ardor to discover the germ producing typhus, applying the technique with hard work and consistency which had served him for several years in the discovery of the way in which the Montana disease, called "Spotted Fever," is transmitted and unmasking the organisms that he found in the blood of the animals and which, he thought, could be producing germs of the disease.

With this suitable preparation, he spent day after day at the bedside of the typhus patients and long and unending hours with the eyes fixed on the microscopic field to catch in the blood of typhus patients organisms similar to those that he had seen for the first time; having therefore the undoubted merit of priority in this discovery. If this is confirmed by the studies of other experimenters, the high honor of being called a discoverer will fall on his memory, and those organisms which are so hard to find in a blood preparation of a typhus patient, even when they are already known, will carry the name of "Ricketts organisms" to perpetuate his great merits and to give him the glory belonging to those who arrive victoriously at the goal.

His stay in these laboratories was brief, and in this short time he made beautiful experiments with which he demonstrated that monkeys of the "Macacus Rhesus" species were sensitive to the injection of typhus-infected blood. Proceeding with the same constancy, he confirmed what was stated by the French scientist Nicolle in Tunis: the transmission of this infection by body lice. However, this experiment had in his hands a greater scope, because Dr. Ricketts ascertained that the monkeys stung by these infected parasites became immune.

These studies did not only show his competence as a skillful experimenter with a logical mind, but the bacteriological investigations which he carried out demonstrated also the correctness of the technique. These investigations led him to the conclusion that no culture is obtained when blood infected with typhus is put in all the usual media in the laboratory, and that none of the usual animals contract typhus or -- which is the same -- they are insensitive to this infection. These studies performed by such a distinguished experimenter were of great satisfaction to us because they confirmed what we had asserted in previous years as result of the investigations carried out by the Institute.

Finished with satisfaction and intending to take back to the University of Chicago, from where he had come, to engage in the scientific campaign that cost him his life, the news of his conquest, he was preparing his next to the last trip because he was planning to return for the completion of his investigations on the immunity of the Macacus monkey that had been inoculated and bitten by the insects, when he fell ill. We no sooner learned about this distressing event, when we rushed anxiously and filled with affectionate interest, which he had been able to arouse in us on account of his excellent moral qualities and his outstanding mind, to learn from Mr. Wilder, his skillful coworker and inseparable partner in work, about the progress of the disease. This disease stopped his return to his beloved ones and to the famous university waiting for one of its most distinguished members to award him a prize for the successes which he had made in the study of exanthematic typhus.

The first news was not too disturbing and we hoped that it would only be a passing indisposition as those observed during springtime in Mexico, and that, very soon, we would have the satisfaction of wishing the good friend and untiring investigator a happy, well-deserved trip. However the events took a different course and with that gloominess characteristic of bad news, we heard the emotional voice of Mr. Wilder pronouncing with a quivering voice filled with deep sorrow that Dr. Ricketts, his wise guide, his inseparable friend, had typhus.

From this instant on, our fear grew day by day. From past experiences we had learned that scientist who forced their brains to such an extent in order to obtain a greater yield from their work, who threw themselves into the ocean of great ideas, and fanatics of their duty weaken their organism with the efforts of their mind so that when they contract typhus, they rarely survive the terrible experience.

He left us in a tragic way not to return to the North where the sweet wife, the tender offspring of his love, and his colleagues at the University of Chicago awaited him with open arms. He left us an example to imitate: his industriousness and steadiness, and a great memory: that of his kind character.

The memory of his short stay at this Institute will not be erased with the disappearance of those who know him and appreciated him, rather it will be awakened and it will last in the minds of those who, in the future, come to drink from the fountains of knowledge which the State supports here with untiring protection and wise initiative, while

contemplating the inscribed marble plaque which has been placed by decree of the President of the Republic into the laboratory where Dr. Howard Taylor Ricketts worked so successfully. This plaque will be unveiled by Mr. Ezequiel A. Chavez in the name of the distinguished Minister of Public Instruction and Fine Arts, who has had a real, earnest desire that this act will take place -- which is another sign for his appreciation of intellectual work and his encouragement for investigators in the present, and those of the future.

Angel Gavino.

V

Address of the Ambassador of the United States of America, while offering a portrait of Dr. H. T. Ricketts to the Bacteriological Institute in the name of Dr. Ricketts' widow.

I have been commissioned to present to the National Bacteriological Institute the portrait of Dr. Howard T. Ricketts who sacrificed his life in this city some six weeks ago, in the interest of science and humanity.

This portrait is a manifestation of the appreciation of the widow of the deceased doctor for the spirit of fraternity and cordiality with which the Mexican medical and scientific groups supported his relentless efforts, and for the wonderful and warm tributes rendered to his memory.

Allow me to add that this portrait brings with it the deep gratitude of the medical profession of the United States to their Mexican brothers. If the mute lips of this painting could speak, I am sure that they would only utter sentiments of satisfaction for a well-done job and gratitude to the brothers of his profession for the help they provided in his studies and who today perpetuate his memory in marble.

It is not only the soldier who dies for his country or for humanity. The one who plants a single tree in the garden of life is greater than the one who destroys the immense forests. Pasteur should occupy a higher place than Napoleon in the glorious annals of France.

The young life that passed away to eternity a few weeks ago in the battle of science to preserve the human race will not be forgotten, but his memory will be cherished

because he was one of those who have given their life in order that others can live.

"Better deeds than this, no man has performed."

Henry Lane Wilson.

VI

Notes of the address by Mr. Ezequiel A. Chavez, Subsecretary of Public Instruction and Fine Arts, before unveiling the commemorative plaque on the works of Dr. H. T. Ricketts in the National Bacteriological Institute.

The subsecretary of Public Instruction and Fine Arts, Attorney Ezequiel A. Chavez stated immediately, before lifting the curtain covering the plaque to make visible to all the name of Dr. Ricketts, in the laboratory where he worked in the campaign for the discovery of the typhus bacillus, that he wished to express, however briefly, the sentiments of the Department of Public Instruction and Fine Arts on this occasion and also his own, personal sentiments.

He said that the Department of Public Instruction and Fine Arts had understood, of course, from the moment of its creation that all work of scientific investigation is the domain not of a specific country or group of countries, but of humanity itself, and because of this fact, all investigators of the world can be and should be in mutual and reciprocal relation; the Department had also been aware at the very beginning that scientific investigations lead to results, the benefit of which is never extended only to one race or to one single group of men, but is distributed over the entire planet. Therefore, a rigorous and academic climate and sentiment prevailed in the Department, in the highest sense of the word, and with this sentiment, the Department had always opened widely the doors of the Mexican institutes to scientists from other countries who wished to work in Mexico to enrich the treasures of science; but, he added, this concept and this general sentiment had been intensified by Dr. Ricketts and his co-workers when they demonstrated their intelligence, their skill, their courage, their boldness to face the most arduous and dangerous tasks, as well as their frankness to make known the character of their work and their results; and that this very same sentiment became even more intense when

the effort of Dr. Ricketts turned out to be heroic and when his work was cut off by fate by his becoming a victim of the disease he was fighting.

Mr. Chavez spoke about the emotion that filled him when he heard the news about Dr. Ricketts' death (whom he had not known personally, but only from the reports on his work that reached the Department of Public Instruction and which were followed anxiously). He stated that this emotion experienced by him on learning of Dr. Ricketts passing away was complex, very complex: that -- first of all -- it contained a dark, piercing sorrow as he saw the outstanding worker fall in the midst of his journey, a worker who seemed predestined to find success and that the dark and piercing sorrow was intermixed with a sentiment of envy because the death that one can eagerly desire for oneself was the one of Dr. Ricketts. This death is the one that Mr. Chavez, himself would have wished ardently for himself; thus, he envied Dr. Ricketts and lamented that he could not be in his position and could not invite several of his good friends to have the same departure from life: all dying together at the instant at which they might have been able to lift part of the dark curtain hiding the flames of science, to obtain in this way, at the price of their lives, some luminous rays lighting up a better way to unfortunate mankind.

Mr. Chavez said also that the effort of Dr. Ricketts was even more meritorious because it was dedicated not to obtain scientific discoveries which could add a few comforts to men already possessing them, but to obtain life and a decrease in suffering for the less fortunate part of the population in which the disease fought by him has its stronghold -- for that part of humanity which needs so much help and consolation and for that part to which one must extend one's hands so generously.

Finally, he concluded saying that with these very same sentiments of dark and piercing sorrow, of admiration for the heroic steadiness, of envy for not being able to suffer the same death and to offer it to loved ones, he would unveil the plaque in honor of Dr. Ricketts, which would constantly display his name in the Bacteriological Institute.

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